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Value Relevance of Earnings of Multinational Firms: Regulatory Regimes Associated with Foreign Subsidiaries

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Abstract

We examine market valuation of foreign earnings of US multinational firms in the context of strength of rule of law of countries in which the international subsidiaries are located. Using 12,288 firm-years observations for the period of 1996 to 2013, we find that foreign earnings association with returns are increasing with the average rule of law of countries in which the MNCs have subsidiaries. We find negative returns-foreign earnings association when a firms expand its operations to other countries, but such association turns out positive when the expansion occurs to countries with stronger investor protection. Value relevance of foreign earnings is highest for the firms which have international subsidiaries located to destinations that are strong in rule of law but are not characterized as tax haven. Our results are robust to alternative empirical specifications and to the concern of endogenous relationship between market valuation and multinational choice of foreign location.

Value Relevance of Earnings of Multinational Firms: Regulatory Regimes Associated with Foreign Subsidiaries

1. Introduction

A part of prior body of research devoted to value relevance of foreign operations identifies that there is a significant positive association between stock returns and foreign earnings, or that the earnings generated from foreign operations are value relevant (e.g., Bodnar and Weintrop, 1997; Bodnar et al., 2003). Contrary to these findings, some papers show negligible or value reducing effects of foreign operations on firm value (e.g., Boatsman et al., 1993; Denis et al., 2002; Garrod and Rees, 1998). However, there is little evidence on how different characteristics associated with different location of subsidiaries within a multinational firm might affect value relevance of earnings. In this paper, we address this issue by empirically examining the likely influence of location of foreign subsidiaries on returns-earnings association of multinationals.

Prior studies on this issue are mainly focused on how country specific factors of the firms in different countries affect value relevance of accounting information. Characteristics such as requirements of financial reporting, practices of disclosures, corporate governance, and strength of investor protection in a country are found to be very important country factors that could determine the nature and strength of value relevance of the firms (e.g., Ali and Hwang, 2000; Hung, 2001). None of these studies focuses on the effect of within firm locations of subsidiaries on value relevance of accounting information.

Studies that take into the account the issue of characteristics associated with different locations of foreign subsidiaries are found to be focused on the research questions other than value relevance, such as financial reporting practices. Empirical results of this line of research show that MNCs that have subsidiaries with extensive operations in countries with weaker state of investor protection tend to manage earnings more (Beuselinck et al., 2016; Durnec et al., 2014; Dyreng et al., 2012). If earnings management could diminish the value relevance of earnings, as empirically shown by Marquardt and Wiedman (2004), then we can predict that MNCs with highly concentrated operations in weak protection regimes would show lower value relevance of accounting information than MNCs which have subsidiaries concentrated in countries with strong investor protection.

We find that value relevance of foreign earnings of U.S. multinational corporations (MNCs) are positively associated with the average rule of law of countries in which the MNCs have material operations. Consistent with prior studies, we also find that geographic expansion of MNCs reduce their value relevance of accounting information, but expanding into strong rule of law countries actually help them gain high value relevance. Furthermore, our results indicate that value relevance of foreign earnings is highest when MNCs operate in countries that have strong rule of law but are not regarded as tax haven destinations. Our results are robust to alternative explanations and specifications controlling for important factors and endogeneity in the relationship between market returns and location choice of subsidiaries.

Our paper contributes to both literature of value relevance and valuation effect of international diversification. Even though there is a large body of literature focused on valuation effect of multinational activities, we do not have enough evidence, if any, of how regulatory strength associated with subsidiary destinations of foreign MNCs affect the value relevance of

their accounting information. Also as prior literature on value relevance of foreign earnings show differential impact of foreign operational growth and performance on valuation, we show that regulatory environment surrounding the foreign operations play significant role in the evaluation of foreign performance.

The rest of the paper is organized as follows. In section 2, we discuss on related literature and hypotheses development. We discuss on the part of data and methodology in section 3 and discuss on empirical findings in section 4. Section 5 discusses results from robustness checks. We conclude in section 6.

2. Related literature and hypotheses development

2.1. Theories and evidence of valuation effect of multinational activities

Economic benefits of international diversification could be derived from economies of scale, access to larger pool of customer, access to the use of natural resources, greater flexibility in operational activities, and opportunities of profiting from differences in institutional regulations. As international diversification facilitate investors to claim on a portfolio of diversified profit streams sourced from different parts of the world, we can expect of a premium for foreign operations while assessing the market value of a multinational corporation. However, findings from empirical studies provide conflicting evidence on the relationship between market value and foreign operations of the firms. The theoretical argument that firm value is increasing with international diversification (Caves, 1971; Kogut, 1983; Errunza and Senbet, 1981; Hines and Rice, 1994) has gained much of its empirical support from earlier work. For example, examining foreign sales or number of foreign subsidiaries as the measures of the extent of

international operations during the period of 1970-78, Errunza and Senbet (1984) find a positive relationship between the firm value and foreign activity. Later Morch and Yeung (1991) find that the positive impact of R&D and advertising expenditure on the firm value is increasing with multinational activities, but multinationality per se does not show any significant impact. Their findings support the internalization theory that the greater capacity of the use of intangible assets make it beneficiary for a firm's entry into foreign market (e.g. Coase, 1937; Hennart, 1982; Rugman, 1981).

Boatsman et al. (1993), in one of the notable studies which provide evidence of negative or insignificant relationship between the firm value and multinational activities, examine how market reacts to the information of unexpected profits generated by foreign segments. They find that the observed association depends on the magnitude of foreign earnings surprise, the time periods and the selection of the region, and draw the conclusion that the disclosure of foreign earnings does not have any considerable influence on equity values. Christophe and Pfeiffer (2000) document that the market valuation of foreign operations is not as high as the valuation of domestic operations. Focusing on the time period of 1987-1993, Denis et al. (2002) examine the performance of globally diversified firms relative to the performance of single-segment domestic firms. While industrially diversified firms are associated with valuation discount as the findings of the prior literature suggests, they consider both global and industrial diversification into their empirical tests and find that globally diversified firms, on average, exhibit a valuation discount that is similar in magnitude to the discount documented for industrially diversified firms.

2.2. Information environment of multinational firms

Literature that empirically examine the relationship between a firm's level of internationalization and information transparency produces evidence that are not very conducive in making of any strong inference. Because of operations in different geographical areas, MNCs face an exposure to multitude of economic, legal, cultural and political environments. Therefore, variations in growth opportunities and risk structure of MNCs tend to be much larger than that are in domestic firms. Such exposure to wider spectrum of financial and nonfinancial environment immediately invokes some information asymmetries inherent in the operations of MNCs that are very unusual to be present in their domestic counterparts. Evidence of prior works confirm this notion that information asymmetry is very severe in the case of MNCs (e.g., Callen et al., 2005; Duru and Reeb, 2002; Hope and Thomas, 2008; Hope et al., 2009). Moreover, foreign earnings show higher persistence than domestic earnings (Bodnar and Weintrop, 1997; Thomas, 1999), which might indicate poor disclosure practices associated with foreign operations (White et al., 2003). The empirical work of Aabo et al. (2015) find evidence of positive relationship between the degree of foreign operations of U.S. MNCs and information asymmetry. That is, their results suggest that an increase in the extent of a firm's foreign involvement tend to diminish the quality of analyst forecast, information content of stock price and idiosyncratic volatility. The negative effect of international operations on information environment predominantly exist for the MNCs that operate in countries that are culturally unique compared to U.S.

2.3. Value relevance of foreign earnings relative to domestic earnings

Following several economic arguments, as discussed in Bodnar et al. (2003), we can expect to observe considerable differences between the value relevance of foreign and domestic

earnings. First, as international operations are often associated with more uncertainty in generating earnings flow, market might put less value for foreign earnings than domestic earnings. Uncertainty in foreign income might arise from exposure to more risk factors, such as, exchange rate volatility, political uncertainty, and agency problems associated with internationalization, geographic and cultural distances, legal complexities and constraints from operating of foreign subsidiaries in different legal regimes (Burgman, 1996; He and Ng, 1998; Lee and Kwok, 1988; Reeb et al., 1998). Such greater risk and uncertainty might the investors in demanding of higher rate of return from foreign operations. This would turn into the expectation of higher discount rate for foreign income than domestic income and the resulted lower association between stock returns and foreign income changes.

Second, on the other hand, we could consider reasons that support the view that value relevance of foreign income would be larger than domestic income. For example, even though in the presence of more volatility, changes in exchange rate might bring persistence in foreign income changes, as exchange rate changes tend to be characterized as highly persistent (e.g., Messe and Rogoff, 1983; Frankel and Rose, 1995). Therefore, foreign earning as more persistent than domestic earnings because of the influence of exchange rate, we can expect a greater effect on value for a change in foreign earnings than a similar change in domestic earnings. Another argument, as Bodnar et al. (2003) highlights, MNCs might employ conservatism in accounting choices for newly opened foreign segments. Because a segment could be associated with greater level of uncertainty at initial cycle of operations, it could be the firms themselves or the auditors might demand conservative reporting of revenues and expenditure until the segment shows promising sign of success. In this case, in the presence of conservative accounting for newly established foreign operations, we can expect a larger valuation impact for foreign earnings.

Another reason that might cause foreign earnings to experience larger effect in valuation is growth opportunities associated with foreign operations that are not likely to be different from opportunities associated with domestic operations. As firms tend to expand their operations into relatively newer and underexploited foreign locations (e.g., Kogut, 1983), and as the success in domestic operations might set the firms to explore foreign markets and the eventual experience of greater growth opportunities associated with successful foreign operations, one can expect growth opportunities of foreign operations to be higher than domestic operations. Collins and Kothari (1989) argue that association of earnings with stock prices is increasing with growth opportunities. Because of higher growth opportunities, foreign earnings might receive higher valuation from the market.

Bodnar and Weintrop (1997) argue that market values of foreign versus domestic operations should be significantly different and provide evidence with important indications for why investors might place higher values for international operations of MNCs compared to values associated with domestic operations. Essentially, focusing on U.S. multinational firms, they decompose earnings into foreign and domestic components and find that both changes in foreign and changes in domestic earnings are positively associated with stock prices. More importantly, the results show that the association of foreign earnings are significantly higher than domestic earnings. The results imply, as authors argue, growth opportunities associated with foreign operations might be more valuable than domestic operations. Earnings growth from foreign operations indicate that MNCs are successful in expanding their operations into foreign locations and are operating under the scenario of higher likelihood of generating more earnings and cash flows in the future. In another study, Bodnar, Hwang, and Weintrop (2003) investigate whether value relevance of foreign incomes of MNCs in other countries are as high as shown by

U.S. multinationals in the study of Bodnar and Weintrop (1997). Focusing on MNCs of Australia, Canada, and U.K., evidence from their empirical tests suggest that, similar to U.S., disclosures of foreign income are value-relevant and the association of foreign income with stock returns are higher than the association of domestic income. Further evidence confirms that such differences in association are mainly due to the differences in growth opportunities of foreign operations relative to domestic operations.

In another investigation, Garrod and Rees (1998) extend the Ohlson (1995) valuation model by using foreign segment data and examine the earnings and book values of U.K. based multinational firms. They find higher valuation of multinational firms than valuation of domestic firms. They do not find any evidence of significant premium for the foreign operations, however, the results show that operations in U.S. receive higher valuation than operations in other locations.

2.4. Country specific characteristics and value relevance of MNCs

Alford et al. (1993) find evidence that information content of earnings are not homogeneous across different countries. Their investigation confirms that such differences are due to the differences in capital markets such as disclosure practices, requirements of financial reporting and corporate governance. Ali and Hwang (2000) conduct a comprehensive study to examine whether value relevance of accounting information differ across seventeen countries due to country specific factors. They identify lower value relevance for the countries with bank-oriented financial systems because of low requirement for value relevant information in financial reports, and also they identify that value relevance is lower for

the countries where private sectors have no involvement in the process of standard setting, as government standard setters are likely to be motivated by political agenda. Furthermore, countries with continental model, countries with higher influence of tax rules in determining of measurements of financial accounting, and countries with practices of little expenditure for external auditing services are likely to be associated with lower value relevance of accounting information. Another important country-specific characteristic found by Ball et al. (2000) is timely disclosure of earnings, which is more pronounced in common law countries than in code law countries, as timely disclosures are highly demanded in regions with common law. Hung (2001) find that countries with weak shareholder protection are tend to experience negative effects of the use of accrual accounting on value relevance of financial statement. DeFond et al. (2007) also identify strong investor protection in a country as an important determinant of informativeness of earnings announcements.

Organizational complexity surrounding the financial and nonfinancial environment of international operations could provide MNCs greater scope of producing poor financial reports. Leuz et al. (2003), by examining earnings management of a sample of firms from 31 countries, find evidence of the influence of institutional settings of a country on the practices of financial reporting. They argue that the presence of strong investor protection law in a country would make it difficult for the firms to extract private benefits by manipulating information. Confirming their argument, they find that firms located in countries with poor status of investor protection are more likely to manage earnings.

2.5. Location of foreign subsidiaries and disclosure practices

One of the few studies that investigates reporting practices within a multinational company is Dyreng et al. (2012), where they examine earnings management of U.S. multinational firms. Investigating earnings management separately for foreign earnings and domestic earnings, they find that foreign earnings management is more prevalent for the MNCs which have extensive operations in countries with weak investment protection law than MNCs with subsidiaries in countries with strong rule of law. Furthermore, their results show that profitable firms with subsidiaries concentrated in tax haven destinations manager earnings more, which is predominantly attributed to foreign earnings.

Durnev et al. (2014) investigate how operations of subsidiaries in Offshore Financial Centers (OFC) influences earnings management. Identifying “offshore firms” as the companies that are incorporated in OFCs and the companies that are U.S. domiciled but have subsidiaries or affiliates in OFCs, they find that the incidences earnings management are more prevalent in “offshore firms” than that are for the U.S. firms with no offshore subsidiaries. Especially subsidiaries in region with prevalent offshore characteristics are strongly associated with the firms’ extensive practices of earnings management through both real activities and accruals. Using a large sample of MNCs with information of subsidiaries across 89 countries, Beuselinck et al. (2016) conduct an extensive study to figure out the location of earnings management within the MNC. As prior literature identifies the considerable influence of MNC headquarters in shaping of subsidiary-level decision related to investment and financing policies (Barlett and Ghoshal, 1989; Robinson and Stocken, 2014), they argue that MNCs might have propensity to use subsidiaries in order to meet their objective of consolidated reporting. They find that MNCs headquartered in stricter regulatory regime tend to manage earnings through subsidiaries in countries with weaker state of regulation.

2.6. Hypotheses development

As literature identifies foreign operations as having negligible impact on firm value (e.g., Boatsman et al., 1993; Christophe and Pfeiffer, 2000) or as having value reducing effect (e.g., Denis et al., 2002), our first concern is to examine value relevance of the effect of extent of foreign operations measured by number of different countries of operations of a firm. In par of doing that, based on the argument that growth opportunities associated with foreign operations are higher that of associated with domestic operations (Bodnar and Weintrop, 1997; Bodnar et al., 2003), we hypothesize that –

H1: Value relevance of MNCs are increasing with the number of different countries of operations.

From our discussion above in literature review, it becomes evident that country specific factors such as strength of investor protection, corporate governance, requirements of financial reporting influence disclosure practices of the firms (Alford et al., 1993; Ali and Hwang, 2000; DeFond et al., 2007; Hung, 2001; Leuz et al., 2003). Moreover, studies show prevalence of earnings management for MNCs with high concentration of subsidiaries in countries with weak investor protection, or in tax haven countries, or in countries characterized as Offshore Financial Centers is associated with higher likelihood of earnings management (Dyreng et al., 2012; Durnev et al., 2014). On the other hand, as Marquardt and Wieldman (2004) show that earnings management diminishes the value relevance of accounting information, our two main hypotheses are -

H2: The returns-earnings association is lower for MNCs that have international subsidiaries with extensive operations in countries with low investor protection law.

H3: High concentration of foreign subsidiaries in tax haven countries lower the value relevance of foreign earnings.

3. Data and methodology

3.1. Measures of earnings and returns

We use Compustat Annual database to compute the measures of earnings. We define foreign earnings as the difference between pretax foreign income and foreign taxes, where foreign taxes are the sum of foreign income taxes and deferred foreign taxes. We calculate domestic earnings as the difference between pretax domestic income and domestic taxes, where domestic taxes are the total incomes taxes adjusted for foreign taxes. Then we compute earnings changes as the difference between the earnings of current fiscal year and of previous fiscal year which is then scaled by beginning of current year stock price.

We collect stock returns data from CRSP monthly returns file. To calculate returns, we cumulate the monthly market-adjusted returns from the fourth month of the current fiscal year to the third month following the end of fiscal year. We use returns on the CRSP value weighted index to measure market returns.

3.2. Subsidiary information and measures of country-level regulation

Information on subsidiaries are available in Exhibit 21 of the Form 10-K, where SEC require the firms to provide list of their material subsidiaries. We use subsidiary data provided by Dyreng and Lindsey (2009), where they create a database by extracting the information of the locations of subsidiaries and made their work available for public.¹ Using subsidiary information, we create a variable *NCOUNTRIES* as the total number distinct countries in which a firm-year has subsidiaries.

Our main variable of interest capturing the strength of regulation of a country is the *RULE OF LAW*, which is the average rule of law of countries in which the firm have subsidiaries as the Exhibit 21 of Form 10-K indicates. World Bank Governance Indicators dataset provide the scores of the rule of law, which ranges from -2.5 to 2.5 with higher value indicating of stronger state of protection of investors. Essentially the scores of rule of law of a country captures the perception about to what extent the agents rely on and play by the rules of society, which specifically indicates the quality of contract enforcement and the quality of law enforcing agencies, and provides some notion about the likelihood of crime and violence. The *RULE OF LAW* that we use in our empirical analysis is the measure of rule of law at firm-level and provides information about the strength of local rule of law to which the international subsidiaries are exposed. A firm's high predominant presence of material subsidiaries in countries with strong rule of law would result in high value of *RULE OF LAW*. Further for empirical analysis, we construct quintile ranking *RULEQ* using the score of *RULE OF LAW* for each industry for each year. Then based on *RULEQ*, we create a dummy variable *HIGH RULEQ* that is equal to one if the values of quintile ranking for a firm-year falls above the median. We presume that the weak local systems of regulations associated with location of subsidiaries

¹ We are thankful to Scott Dyreng for making this data available at <https://sites.google.com/site/scottdyreng/>.

would provide greater opportunity of earnings manipulation, even though worldwide earnings of U.S.-based firms are exposed to U.S. GAAP and U.S. securities laws.

Our second measure of country-level regulation, which we use in our robustness tests, is *HAVEN INTENSITY* as a measure of proportion of subsidiaries being located in the tax haven countries. Using the lists of tax haven countries as described in Dyreng and Lindsey (2009), we compute *HAVEN INTENSITY* as the number of subsidiaries in tax haven countries divided by the total number of subsidiaries. Similar to *RULEQ*, we also make a quintile ranking of *HAVEN INTENSITY* for each industry for each year as *HAVENQ*. Then we create a dummy variable as *HIGH HAVENQ* that is equal to one if quintile ranking of a firm-year is above median.

3.3. Sample and descriptive statistics

Our sample period spans from the year of 1996 to 2013. Initially we construct a sample of U.S.-based multinational firms listed on Compustat, whereas multinationals are the firms which have nonzero values for pre-tax income or nonzero values for foreign tax expense. The multinationals in our sample have available information on full list of subsidiary locations worldwide. We exclude observations of firm-years in regulated industries (SIC codes 4900-4999 and 6000-6999). Further we need the firm-years in our sample to have nonmissing information on both current and lagged observations for domestic and foreign earnings. The included sample have enough observations to calculate cumulative market-adjusted returns from CRSP. Finally, firm-years with missing information on country-level regulation for one or more countries in which the subsidiaries are located are excluded. Our final sample consists of 12,288 firm-years with 165,140 subsidiary-years observations.

4. Empirical specifications and results

In this section, we describe our empirical strategy of investigating the issue that to what extent the strength of association of accounting information with market returns vary with the firms' exposure to different levels of rules of law associated with subsidiaries in different countries. Essentially our tests are focus on whether the foreign earnings coefficient (ERC) is an increasing function of the strength of rule of law the international subsidiaries are exposed to. We particularly follow Bodnar and Weintrop (1997) and other recent studies which deal with the issue of value relevance of foreign earnings or foreign operations (e.g., Christophe, 2002; Hope and Thomas, 2008; Hope, Thomas, and Vasvari, 2009), we first use the following the model to ERC differentials between changes in domestic and foreign earnings –

$$R_{it} = \beta_0 + \beta_1 \Delta DEPS_{it} + \beta_2 \Delta FEPS_{it} + \sum_{i=1}^n \gamma_i IND_i + \sum_{j=1}^t \delta_j YEAR_j + \varepsilon_{it} \quad (1)$$

where R_{it} is the monthly market-adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year, $\Delta DEPS_{it}$ is change in domestic earnings per share deflated by beginning of period price, $\Delta FEPS_{it}$ is change in foreign earnings per share deflated by beginning of period stock price, IND_i is dummy variable for each of the 44 industry groups which are defined using Fama-French 48 industry classification, $YEAR_j$ is dummy variable for each of the years from 1996 to 2013.

The results using the specification (1) is shown in the column (1) of table 5. Confirming the findings of prior studies (e.g., Bodnar and Weintrop, 1997; Bodnar, Hwang, and Weintrop, 2003; Hope et al., 2009), we find that coefficients of both $\Delta DEPS$ and $\Delta FEPS$ are positively significant and more importantly the coefficient of foreign earnings changes is higher than

domestic earnings change. As the results confirm that foreign earnings are more value relevant than domestic earnings, we then investigate whether such positive association of foreign earnings are increasing with the average rule of law of countries in which the subsidiaries are located. For this purpose, as discussed above, first we compute *RULE OF LAW* as the average score of rule of law of countries in which the subsidiaries of firm are located. Then we construct *RULEQ* as the quintile ranking of *RULE OF LAW* for each industry for each year. After introducing the *RULEQ* and an interaction term between *RULEQ* and $\Delta FEPS$ in column (2) of table 5, we find the association between returns and $\Delta FEPS$ positive but not significant. On the other hand, the interaction term between $\Delta FEPS$ and *RULEQ* shows a positive and very significant association with returns. The implication of the result is twofold. First and foremost, the value relevance of foreign earnings increases with average rule of law of countries in which the subsidiaries of the firms are located. Further it implies that investors are likely to place higher value for the foreign earnings of the firms of which subsidiaries are predominantly located to countries where protection of investors' rights or rule of law is higher. Second, much of both statistical and economic significance of the coefficient of foreign earnings in the value relevance regression models is associated with the presence of subsidiaries in countries with strong rule of law, which we can infer after observing the loss of economic and statistical significance of the individual term $\Delta FEPS$ once the interaction term between $\Delta FEPS$ and *RULEQ* has been introduced in the model.

Furthering of our investigation how country-level regulation play role in strengthening the value of relevance of earnings, we construct a dummy variable *HIGH RULEQ* as equal to one if the industry-year quintile ranking of *RULE OF LAW* is above the median of ranking, otherwise zero. In column (3) of table 5, we find that the coefficient of the interaction term

between $\Delta FEPS$ and *HIGH RULEQ* is positive and highly significant, which also show a considerable increase in magnitude of the relationship between foreign earnings and market returns. Observing results from table 5 we can conclude that average rule of law of the subsidiaries locations does matter in improving the value relevance of foreign earnings, which is more evident for the firms that have subsidiaries located in countries with above median ranking for rule of law.

For a further understanding how regulatory strength in countries in which U.S. subsidiaries are located affects value relevance of earnings, we split the sample into two groups based on the strength of regulatory regimes and examine whether the value relevance significantly varies across the groups. In table 6, we can observe that value relevance of the change in foreign earnings for the subsample of MNCs in high rule of law countries, defined by *HIGH RULEQ* equals one, is 0.93, whereas the value relevance of foreign earnings for MNCs in low rule of countries is 0.28. The difference between these two coefficients are 0.65, which is significant at 1% level.

Next we examine how geographic expansion of MNCs affects their value relevance and whether the effect has any moderating effect through rule of laws of subsidiary destinations. In column (2) table 7, we can observe that the coefficient of interaction between *NCOUNTRIES*, the number of countries the MNC is operating in, and change in foreign earnings is negative. But when we interact the quintile ranking of rule of law with this interaction term, as the coefficient shown in column (2) is 0.012, which is positive and significant. Similarly we can observe a positive coefficient for interaction between changes in foreign earnings, *NCOUNTRIES* and *HIGH RULEQ*. Overall the results indicate that even though geographic expansion might be

associated with loss of value relevance of foreign earnings, expanding operations in high rule of law countries help MNCs receive increased level of value relevance.

A country can have high rule of law and also be tax haven, whereas locating subsidiaries in tax haven destination can be an instrument of avoiding regulatory restrictions in home country. Thus we further check the value relevance for MNCs with subsidiaries in tax haven destination. In table 8, we can observe for the subsample MNCs that have subsidiaries in high rule of law countries but have low tax haven intensity, the value relevance of foreign earnings is 1.274. But the value relevance decreases to 0.463 when the subsidiary destinations belong to both characteristics of strong rule of law and high haven intensity. On the other hand, for the subsample of MNCs that do not have subsidiaries belonging to high rule of law countries, show low value relevance of foreign earnings, whether destinations have high tax haven intensity or not.

6. Robustness checks

In this section we examine whether our results are robust to alternative specifications and to the concern of endogeneity arising from the concern of nonrandom decision of locating subsidiaries in different foreign region with different strength of rule of law. A detail discussion of these issues are as follows.

6.1. Controlling for other important factors

We can think of some important factors that could potentially affect the value relevance of foreign earnings. For example, investors might pay more attention and highly rely on earnings disclosed by large firms. Also foreign earnings could become more relevant for a firm with a

large share of revenue generated from foreign subsidiaries. Nonetheless, a high growth in foreign revenue might show the importance of foreign operations and lead to a greater market appreciation of foreign earnings. Thus next we examine our value relevance model controlling for size, foreign share of revenue and foreign sales growth.

The results are presented in table 9. Both column (1) and column (2) show that increase in size improves pricing of foreign earnings. More importantly, we find that interaction between $\Delta FEPS$ and $RULEQ$ is highly significant, which implies our findings are robust to controlling for other important variables. Again, multinationals experience the strongest value relevance of foreign earnings when they have international subsidiaries placing at upper quintile ranking of rule of law, as highly economic and statistical significance of the coefficient of $\Delta FEPS$ and $HIGH\ RULEQ$ suggest.

6.2. Earnings quality and value relevance of foreign earnings

Rule of law of countries in which a multinational have foreign subsidiaries can influence its earnings management practices. For example, using a sample of EU-based multinational firms, Beuselinck et al. (2016) show that poor quality of institutional regulation in subsidiary-countries might lead a higher earnings management at subsidiary-level. Dyreng et al. (2012) examine a sample of U.S.-based multinationals for the period of 1994 to 2009 and find that discretionary accruals are higher for the companies that have foreign subsidiaries highly concentrated in countries with weak rule of law. Findings of this line research might raise the concern of the influence of earnings management of multinationals on value relevance of foreign earnings. In other words, one can claim that our findings might be due to less earnings

management associated with strong rule of law in foreign subsidiary locations, not because of rule of law itself.

We argue that rule of law has its own characteristics, before its influence reaching to the policy level of a firm, which can lead to affecting the pricing of foreign earnings. Empirically it suggests that whether earnings management practices of a firm is high or low, more concentration of foreign-subsidaries in the region of high rule of law would likely to increase value relevance of foreign earnings. Therefore, to check further validity of our results, we construct two subsamples based on earnings management and examine whether our results hold regardless of earnings quality. First we calculate absolute value discretionary accruals base on modified Jones model (Jones, 1991). Then we construct quintile ranking of discretionary accruals for each industry-year and create a subsample of “High earnings management” consisting of observations with above median rank. Then rest of the observations is defined under the subsample of “Low earnings management”.

The results in column (1) and (2) of table 10 show that subsidiaries located to strong rule of law destinations help multinationals receive high value relevance of foreign earnings, even if the overall earnings quality is low. Similar results we find when earnings quality is high or earnings manipulation is low. Overall our findings suggest that no matter whether there is a more or less practices of earnings management, strong rule of law associated with foreign subsidiaries lead to a greater pricing of foreign earnings.

6.3. Controlling for endogeneity

Given that managers are motivated in maximizing the shareholder value, we cannot rule out the possibility that decision of locating subsidiaries in strong rule of law region is not random. This could make the relationship between value relevance of foreign earnings and subsidiary location choices endogenous. We confront this issue with two approaches – Heckman self-selection model (1979), and instrument variable approach.

For Heckman self-selection model, we first estimate the probability of a multinational's subsidiaries concentrated in strong rule of law region based on a probit model. Specifically using *HIGH RULEQ* as the dependent variable, we include some important variables that could potentially affect the possibility that the value of the dummy variable, *HIGH RULEQ*, to be one. We follow the logical spirit of Campa and Kedia (2002) in construction of two key variables that we employ in our probit model. Essentially in estimating the probability of a firm to be industrially diversified, two variables presented by Campa and Kedia (2002) are - fraction of all firms in the industry as diversified and fraction of sales in the industry generated by diversified firms. Following their argument, these variables should capture industry attractiveness for a firm to be diversified. Since our sample consists of internationally diversified firms and we focus on high concentration of foreign subsidiaries in countries with strong rule of law in examining the value relevance of foreign earnings, we could think of variables that could well capture the economic preference for the multinationals to place their subsidiaries in those countries. One variable we propose in this paper is the fraction of all subsidiaries in the industry that are in a particular country. To construct this variable, first, we calculate share of total subsidiaries in an industry for each country and then we distribute those fractions across the subsidiary-countries of a firm. Finally, we define *EW_COUNTRIES_IND* as the equally weighted average of those distributed fractions within a firm, where weight is the firm-level proportion of subsidiaries in a

country. For example, a firm operating in apparel industry has subsidiaries in Germany, Brazil, and France, whereas fraction of subsidiaries in that industry in those countries are 0.15, 0.33, and 0.09, respectively. Then $EW_COUNTRIES_IND$ for that firm is –

$$EW_COUNTRIES_IND = 1/3(0.15 + 0.33 + 0.09) = 0.19$$

We predict that $EW_COUNTRIES_IND$ should be strongly and positively related with the likelihood of the firms in the group of *HIGH RULEQ*.

Another variable we propose is $EW_COUNTRIES_DIST$, which is the equally weighted average of distances of foreign subsidiaries from the corresponding capital cities to the capital city of U.S. We predict that there should be a strong negative relation between $EW_COUNTRIES_DIST$ and probability of *HIGH RULEQ* to be one. Other factors capturing important firm characteristics that we include in our probit specifications are firm size, share of foreign revenue, growth in foreign revenue, investment, leverage, and liquidity.

The specification for our probit model is as follows –

$$\Pr(HIGHT\ RULEQ = 1)_{i,t} = \alpha_0 + \beta_1 EW_COUNTRIES_IND_{i,t} + \beta_2 EW_COUNTRIES_DIST_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 FSHAR_{i,t} + \beta_5 FREV\ GROWTH_{i,t} + \beta_6 INVSTMENT_{i,t} + \beta_7 LEVERAGE_{i,t} + \beta_8 LIQUIDITY_{i,t} + \varepsilon_{i,t}$$

(2)

The results in table 11 show that $EW_COUNTRIES_DIST$ is significantly and positively related with the dummy variable *HIGH RULEQ*. Also as we expect, $EW_COUNTRIES_DIST$ is significantly and negatively associated with our binary dependent variable. Other important variable that significantly influence the likelihood of a multinational to have subsidiaries

concentrated in high rule of law destinations are size, growth in foreign revenue, and leverage, and liquidity.

Following the methodology of Heckman (1979), we calculate Λ using equation (2) to control for endogeneity. Following the results in table 12 in column (1), after controlling for endogeneity in our original model, we find that the coefficient of interaction between $\Delta FEPS$ and *HIGH RULEQ* is still positive and highly significant. Another important issue to note that the coefficient of Λ is negative but not significant, which implies that our results are not potentially driven by endogenous relationship.

Further, following Campa and Kedia (2002), we employ an alternative approach to deal with the issue of endogeneity. First, using equation (2) we calculate the predicted probability for a multinational to be in the upper quintile ranking as a generated instrument. Essentially in the first stage, in a regression with *HIGH RULEQ* as dependent variable, we use all exogenous variables in our original model and also include the predicted probability calculated from equation (2). Then we use the fitted value from first stage as an instrument for *HIGH RULEQ*. The results in column (2) of table 12 show that our findings are also robust to this instrumental variable approach. The coefficient of interaction between $\Delta FEPS$ and *HIGH RULEQ* suggests that higher concentration of foreign subsidiaries in strong rule of law destinations significantly increase the value relevance of foreign earnings.

7. Conclusion

Literature shows conflicting results on the valuation impact of international diversification. There are some papers which show that foreign earnings are more value relevant

than domestic earnings, which is mainly because of higher growth opportunities associated with foreign operations. We can hardly find any work that focuses on the value relevance of country specific characteristics associated with the location of foreign subsidiaries. In this paper, we address this gap in the literature and examine how country factors associated with foreign subsidiaries, such as strength of investor protection, tax haven could affect the value relevance of both consolidated earnings and foreign earnings. We find that operations in high rule of law countries help the MNCs to receive high value relevance of foreign earnings. Our results provide important implications for investors and regulators who are concerned about reliability of earnings disclosed by multinational firms.

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Image 1: Sample distribution of foreign subsidiaries of U.S incorporated MNCs around the world



Table 1: Subsidiary distribution and regulatory characteristics by country

The table shows the country-wise distribution of 165,140 subsidiary-years for the sample period of 1996-2013 and the corresponding countries' values of rule of law and tax haven status. Rule is the average rule of law scores for each country over the sample period, whereas the scores of rule of law for each country is collected from World Bank Governance Indicators. *Tax haven* is a dummy variable equal to one if a country is identified as tax haven following the description of Dyreng and Lindsey (2009).

Country	Subsidiary percentage	Rule	Tax haven	Country	Subsidiary percentage	Rule	Tax haven
Afghanistan	0.002%	-1.776	0	Cuba	0.013%	-0.872	0
Albania	0.012%	-0.579	0	Cyprus	0.248%	1.054	1
Algeria	0.068%	-0.794	0	Czech Republic	0.977%	0.871	0
Angola	0.058%	-1.300	0	Denmark	1.267%	1.905	0
Antigua and Barbuda	0.002%	0.946	1	Djibouti	0.003%	-0.738	0
Argentina	1.372%	-0.557	0	Dominica	0.005%	0.658	1
Armenia	0.022%	-0.397	0	Dominican Republic	0.167%	-0.650	0
Aruba	0.025%	1.206	1	Ecuador	0.309%	-0.936	0
Australia	3.170%	1.745	0	Egypt	0.300%	-0.163	0
Austria	1.358%	1.850	0	El Salvador	0.167%	-0.694	0
Azerbaijan	0.016%	-0.819	0	Equatorial Guinea	0.028%	-1.295	0
Bahamas, The	0.160%	1.062	1	Eritrea	0.001%	-0.346	0
Bahrain	0.087%	0.449	1	Estonia	0.112%	1.011	0

Bangladesh	0.057%	-0.870	0	Ethiopia	0.007%	-0.662	0
Barbados	0.975%	1.235	1	Fiji	0.010%	-0.349	0
Belarus	0.016%	-0.989	0	Finland	0.953%	1.940	0
Belgium	1.982%	1.311	0	France	3.981%	1.409	0
Belize	0.008%	-0.265	1	French Guiana	0.001%	0.927	0
Benin	0.002%	-0.569	0	Congo	0.001%	-1.638	0
Bermuda	1.049%	1.066	1	Costa Rica	0.418%	0.500	1
Bolivia	0.142%	-0.760	0	Cote d'Ivoire	0.015%	-1.116	0
Bosnia and Herzegovina	0.017%	-0.359	0	Croatia	0.130%	0.035	0
Botswana	0.067%	0.616	0	Gabon	0.044%	-0.481	0
Brazil	2.393%	-0.275	0	Gaza Strip	0.001%	-0.440	0
Brunei	0.037%	0.552	0	Georgia	0.574%	-0.645	0
Bulgaria	0.170%	-0.149	0	Germany	4.071%	1.642	0
Burkina Faso	0.009%	-0.415	0	Ghana	0.067%	-0.063	0
Burma	0.005%	-1.472	0	Greece	0.411%	0.736	0
Cambodia	0.013%	-1.069	0	Grenada	0.007%	0.305	1
Cameroon	0.025%	-1.106	0	Guam	0.033%	1.123	0
Canada	4.839%	1.735	0	Guatemala	0.245%	-1.074	0
Cayman Islands	1.249%	1.101	1	Guinea	0.050%	-1.369	0
Chad	0.013%	-1.448	0	Haiti	0.004%	-1.370	0
Country	Subsidiary percentage	Rule	Tax haven	Country	Subsidiary percentage	Mean rule of law	Tax haven
Chile	0.928%	1.265	0	Honduras	0.159%	-0.969	0
China	3.128%	-0.421	0	Hong Kong	2.779%	1.388	1
Colombia	0.755%	-0.584	0	Hungary	1.008%	0.814	0
Iceland	0.033%	1.791	0	Monaco	0.028%	0.900	1
India	2.333%	0.042	0	Mongolia	0.011%	-0.339	0
Indonesia	0.681%	-0.684	0	Morocco	0.141%	-0.126	0
Iran	0.016%	-0.787	0	Namibia	0.024%	0.191	0
Iraq	0.017%	-1.558	0	Nepal	0.001%	-0.405	0
Ireland	1.913%	1.646	1	Netherlands	3.578%	1.760	0
Israel	0.893%	0.922	0	Netherlands Antilles	0.093%	0.871	1
Italy	2.791%	0.543	0	New Zealand	1.241%	1.849	0
Jamaica	0.163%	-0.432	0	Nicaragua	0.096%	-0.756	0
Japan	3.214%	1.296	0	Niger	0.002%	-0.596	0
Jersey	0.033%	1.719	1	Nigeria	0.233%	-1.202	0
Jordan	0.028%	0.351	0	Norway	1.061%	1.913	0
Kazakhstan	0.070%	-0.775	0	Oman	0.048%	0.573	0
Kenya	0.114%	-0.937	0	Pakistan	0.148%	-0.840	0
Kiribati	0.004%	0.400	0	Palau	0.002%	0.852	0
Korea, South	1.991%	0.909	0	Panama	0.395%	-0.162	1
Kosovo	0.004%	-0.732	0	Papua New Guinea	0.021%	-0.911	0

Kuwait	0.036%	0.567	0	Paraguay	0.056%	-0.977	0
Kyrgyzstan	0.008%	-1.121	0	Peru	0.543%	-0.645	0
Laos	0.001%	-1.096	0	Philippines	0.870%	-0.437	0
Latvia	0.090%	0.619	0	Poland	1.235%	0.591	0
Lebanon	0.064%	-0.512	1	Portugal	0.854%	1.112	0
Lesotho	0.015%	-0.271	0	Puerto Rico	0.773%	0.766	0
Liberia	0.047%	-1.431	1	Qatar	0.054%	0.789	0
Libya	0.041%	-0.994	0	Reunion	0.007%	1.008	0
Liechtenstein	0.029%	1.369	1	Romania	0.340%	-0.039	0
Lithuania	0.091%	0.599	0	Russia	0.767%	-0.865	0
Luxembourg	1.120%	1.795	1	Rwanda	0.001%	-0.205	0
Macau	0.082%	0.615	1	Saint Kitts and Nevis	0.032%	0.716	1
Macedonia	0.025%	-0.334	0	Saint Lucia	0.032%	0.755	1
Madagascar	0.005%	-0.759	0	Saint Vincent and the Grenadines	0.018%	0.762	1
Malawi	0.025%	-0.212	0	Samoa	0.012%	0.803	1
Malaysia	1.530%	0.489	1	San Marino	0.002%	0.806	1
Mali	0.018%	-0.377	0	Saudi Arabia	0.224%	0.182	0
Malta	0.091%	1.414	1	Senegal	0.024%	-0.283	0
Marshall Islands	0.012%	-0.012	1	Serbia	0.086%	-0.469	0
Country	Subsidiary percentage	Rule	Tax haven	Country	Subsidiary percentage	Mean rule of law	Tax haven
Martinique	0.001%	0.874	0	Slovakia	0.383%	0.456	0
Mauritania	0.003%	-0.867	0	Slovenia	0.117%	0.981	0
Mauritius	0.592%	0.938	1				
Mexico	3.180%	-0.533	0				
Moldova	0.020%	-0.432	0				
South Africa	1.189%	0.095	0				
Spain	2.410%	1.184	0				
Sri Lanka	0.049%	0.096	0				
Sudan	0.002%	-1.370	0				
Suriname	0.019%	-0.203	0				
Swaziland	0.012%	-0.578	0				
Sweden	1.877%	1.869	0				
Switzerland	2.156%	1.845	1				
Syria	0.005%	-0.646	0				
Taiwan	1.387%	0.894	0				
Tanzania	0.050%	-0.444	0				
Thailand	1.310%	0.060	0				
Timor-Leste	0.010%	-1.130	0				
Trinidad and Tobago	0.140%	-0.091	0				
Tunisia	0.096%	0.028	0				
Turkey	0.621%	0.042	0				

Turkmenistan	0.002%	-1.507	0
Tuvalu	0.004%	1.153	0
Uganda	0.033%	-0.422	0
Ukraine	0.180%	-0.824	0
United Arab Emirates	0.255%	0.517	0
United Kingdom	4.580%	1.673	0
United States of America	1.076%	1.560	0
Uruguay	0.362%	0.542	0
Uzbekistan	0.012%	-1.239	0
Vanuatu	0.024%	0.182	1
Venezuela	0.859%	-1.315	0
Vietnam	0.176%	-0.455	0
Virgin Islands (US)	0.025%	0.990	0
Wake Island	0.016%	-1.152	0
Yemen	0.031%	-1.252	0
Zambia	0.058%	-0.486	0
Zimbabwe	0.084%	-1.457	0

Table 2: Subsidiary distribution and earnings share by industry

The table shows the industry-wise distribution of 165,140 subsidiary-years for the sample period of 1996-2013 and the corresponding values of rule of law and tax haven status. Rule is the average rule of law scores for each country over the sample period, whereas the scores of rule of law for each country is collected from World Bank Governance Indicators. *Tax haven* is a dummy variable equal to one if a country is identified as tax haven following the description of Dyreng and Lindsey (2009). Haven intensity is the total number of tax haven countries divided by the total number of counties in which a firm has material operations. Domestic (Foreign) earnings share show the average percentages of total annual income in an industry are from domestic (foreign) sources. *DOMESTIC EARNINGS* are defined as the difference between pretax domestic income and domestic taxes; whereas domestic taxes are the difference between total income taxes and foreign taxes. *FOREIGN EARNINGS* are the difference between pretax domestic income and foreign taxes; whereas foreign taxes are the sum of foreign income taxes and deferred foreign taxes. Industries are defined following Fama-French 48 industry classifications.

Industry	Subsidiary percentage	Rule of law	Haven intensity	Domestic earnings share	Foreign earnings share
Agriculture	0.315%	0.805	21.154%	55.056%	44.944%
Aircraft	0.560%	1.097	17.857%	50.936%	49.064%
Apparel	1.387%	1.059	21.616%	32.169%	67.831%
Automobiles and trucks	2.966%	0.815	12.209%	62.128%	37.872%
Beer	0.585%	0.707	17.081%	35.978%	64.022%
Business services	18.337%	0.985	17.579%	43.860%	56.140%
Business supplies	2.312%	0.872	16.160%	48.951%	51.049%
Candy & soda	0.108%	0.693	20.225%	30.145%	69.855%
Chemicals	6.736%	0.776	17.332%	40.433%	59.567%
Coal	0.019%	1.125	19.355%	79.811%	20.189%

Communication	1.054%	0.821	18.438%	0.000%	100.000%
Computers	7.113%	0.928	20.124%	21.662%	78.338%
Construction	0.532%	0.995	24.915%	54.838%	45.162%
Construction materials	2.129%	0.992	17.975%	51.924%	48.076%
Consumer goods	2.805%	0.795	17.267%	34.658%	65.342%
Electrical equipment	2.569%	0.828	16.663%	46.200%	53.800%
Electronic equipment	8.202%	1.002	23.691%	31.747%	68.253%
Entertainment	0.276%	0.806	19.560%	0.000%	100.000%
Fabricated products	0.231%	0.922	14.173%	0.000%	100.000%
Food products	2.077%	0.644	15.219%	58.535%	41.465%
Gold	0.150%	0.42	14.919%	100.000%	0.000%
Guns	0.015%	1.312	36.000%	95.153%	4.847%
Healthcare	0.146%	1.142	18.257%	98.252%	1.748%
Machinery	9.194%	0.892	17.533%	46.347%	53.653%
Measuring and Control Equipment	3.716%	1.085	18.872%	39.842%	60.158%
Medical equipment	4.382%	1.084	17.302%	18.083%	81.917%
Metallic and industrial metal mining	0.248%	0.739	12.195%	0.000%	100.000%
Other	0.973%	0.926	17.808%	54.696%	45.304%
Personal services	0.869%	1.026	22.787%	67.525%	32.475%
Industry	Subsidiary percentage	Rule of law	Haven intensity share	Domestic earnings share	Foreign earnings share
Petroleum and natural gas	2.815%	0.444	22.633%	30.820%	69.180%
Pharmaceutical products	4.967%	0.896	16.411%	26.512%	73.488%
Printing and publishing	0.750%	0.962	17.932%	88.516%	11.484%
Recreation	0.832%	1.132	19.869%	12.893%	87.107%
Restaurants, hotels, motels	0.351%	1.046	24.138%	39.210%	60.790%
Retail	1.444%	1.057	24.119%	77.788%	22.212%
Rubber and Plastic Products	1.482%	0.753	15.727%	24.990%	75.010%
Shipbuilding, railroad equipment	0.134%	0.848	12.613%	80.413%	19.587%
Shipping containers	0.627%	0.751	14.865%	57.055%	42.945%
Steel	1.375%	0.821	16.520%	28.050%	71.950%
Textiles	0.586%	0.883	17.872%	0.000%	100.000%
Tobacco products	0.276%	0.635	15.132%	51.153%	48.847%
Transportation	0.808%	0.826	21.049%	12.465%	87.535%
Utilities	0.056%	0.694	24.731%	86.659%	13.341%
Wholesale	3.492%	0.881	17.725%	55.070%	44.930%

Table 3: Descriptive statistics

The table show the descriptive statistics of key characteristics of the sample of U.S. multinational firms for the period of 1996-2013. LOW RULEQ (HIGH RULEQ) is the subsample below (above) the median of quintile ranking of the scores of rule of law for the firm-years. Rule of law scores for each country-year is collected from World Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations. *Return* is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. *TOTAL ASSETS* is the total assets of the firm in million dollars; *MVE* is market value of equity; *Total Earnings* is firms' earnings in million dollars. *FOREIGN EARNINGS* are the difference between pretax foreign income and foreign taxes; whereas foreign taxes are the sum of foreign income taxes and deferred foreign taxes. *DOMESTIC EARNINGS* are defined as the difference between pretax domestic income and domestic taxes; whereas domestic taxes are the difference between total income taxes and foreign taxes. *PRICE* is the market price of stock. *BVPS* is the book value per share calculated as book value of equity divided by total number of shares outstanding at the end of fiscal year. *EPS* is earnings per share calculated as income before extraordinary items divided by total number of shares outstanding at the end of the fiscal year. ΔEPS is the change in total earnings per share deflated by stock price at the end of previous fiscal year. $\Delta FEPS$ ($\Delta DEPS$) is the change in foreign (domestic) earnings per share deflated by stock price at the end of previous fiscal year. *NCOUNTRIES* is the number of distinct countries in which the firms have subsidiaries. *HAVEN INTENSITY* is the total number of tax haven countries divided by the total number of counties in which a firm has material operations.

	Whole Sample		LOW RULEQ		HIGH RULEQ		Differences	
Variable	Mean (1)	Median (2)	Mean (3)	Median (4)	Mean (5)	Median (6)	Mean (3)-(5)	Median (4)-(6)
<i>Return</i>	0.034	-0.013	0.033	-0.010	0.036	-0.018	-0.003	0.007
<i>TOTAL ASSETS</i>	5602.590	979.895	6303.930	1304.020	4548.000	643.311	1755.930***	660.710***
<i>MVE</i>	6857.200	1040.480	7904.420	1379.890	5282.520	711.884	2621.900***	668.006***
<i>TOTAL EARNINGS</i>	322.177	36.287	373.674	50.065	244.742	22.979	128.932***	27.086***
<i>FOREIGN EARNINGS</i>	186.348	11.630	230.410	18.840	120.094	5.547	110.316***	13.294***
<i>DOMESTIC EARNINGS</i>	145.406	15.931	150.285	20.316	138.071	10.584	12.214	9.732***
<i>PRICE</i>	30.216	22.250	32.149	24.035	27.309	19.380	4.840***	4.655***
<i>BVPS</i>	11.932	9.175	12.545	9.646	11.009	8.455	1.536***	1.191***
<i>EPS</i>	1.004	0.961	1.017	1.090	0.984	0.777	0.033	0.313***
ΔEPS	0.041	0.004	0.061	0.004	0.011	0.004	0.050	0.000
$\Delta DEPS$	0.037	0.001	0.056	0.002	0.009	0.001	0.047	0.000
$\Delta FEPS$	0.004	0.001	0.006	0.001	0.002	0.001	0.004*	0.000
<i>NCOUNTRIES</i>	13.439	9.000	17.262	13.000	7.691	6.000	9.571***	7.000***
<i>HAVEN INTENSTIY</i>	0.190	0.167	0.179	0.167	0.206	0.172	-0.026***	-0.006**
<i>N</i>	12,288		7,380		4,908			

Table 4: Correlation coefficients

The table shows Pearson correlations between the key characteristics of the firms and information of international subsidiaries. *Return* is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. *RULE* is the firms' average rule of law scores across the countries in which the firms have material operations, whereas rule of law scores for each country-year is obtained from World Bank Governance Indicators. *EPS* is earnings per share calculated as income before extraordinary items divided by total number of shares outstanding at the end of the fiscal year. *DEPS* (FEPS) is the domestic (foreign) earnings per share. ΔEPS is the change in total earnings per share deflated by stock price at the end of previous fiscal year. $\Delta FEPS$ ($\Delta DEPS$) is the change in foreign (domestic) earnings per share deflated by stock price at the end of previous fiscal year. *NCOUNTRIES* is the number of distinct countries in which the firms have subsidiaries. *HAVEN INTENSITY* is the total number of tax haven countries divided by the total number of counties in which a firm has material operations.

	<i>Return</i>	<i>RULE</i>	<i>EPS</i>	<i>DEPS</i>	<i>FEPS</i>	ΔEPS	$\Delta DEPS$	$\Delta FEPS$	<i>NCOUNTRIES</i>	<i>HAVEN INTENSTIY</i>
<i>Return</i>	1									
<i>RULE</i>	-0.010	1								
<i>EPS</i>	0.019**	-0.015*	1							
<i>DEPS</i>	0.027***	-0.024***	0.116***	1						
<i>FEPS</i>	0.010	-0.079***	0.045***	0.406***	1					
ΔEPS	0.014	-0.001	0.533***	0.038***	0.000	1				
$\Delta DEPS$	0.013	-0.001	0.534***	0.038***	-0.001	1.000	1			
$\Delta FEPS$	0.112***	-0.024***	-0.010	-0.006	0.020**	-0.017*	-0.028***	1		
<i>NCOUNTRIES</i>	0.006	-0.303***	0.031***	0.099***	0.195***	-0.003	-0.003	-0.001	1	
<i>HAVEN INTENSTIY</i>	-0.002	0.098***	0.016*	0.007	0.057***	-0.003	-0.003	0.000	-0.037***	1

Table 5: Quality of regulatory regimes and returns-earnings association

The table shows the relationship between stock return and earnings of multinational firms with subsidiaries in different regulatory regimes. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *RULEQ* is the industry-year quintile ranking of average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years. Each regression model control for both industry and year effects. Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	(1)	(2)	(3)
<i>Intercept</i>	-0.058*** (0.015)	-0.058*** (0.017)	-0.058*** (0.015)
$\Delta DEPS$	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
$\Delta FEPS$	0.376*** (0.065)	0.033 (0.091)	0.279*** (0.058)
<i>RULEQ</i>		0.000 (0.003)	
$\Delta FEPS * RULEQ$		0.158*** (0.044)	
<i>HIGH RULEQ</i>			0.002 (0.008)
$\Delta FEPS * HIGH RULEQ$			0.590*** (0.159)
<i>Adjusted R²</i>	0.074	0.077	0.078
<i>N</i>	12,288	12,288	12,288

Table 6: Returns-earnings associations for different subsamples of MNCs with exposure to different regulatory regimes

The table reports results from industry and year fixed effects of regressions of returns on the changes in domestic and foreign earnings for the subsample of firms based on quality of regulatory regimes in which the international subsidiaries are located. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *HIGH RULEQ* is a dummy variable equal to one if a firm's scores of rules of law averaged across the scores associated with countries in which its subsidiaries are located are above the median of quintile ranking of scores in a year. Quintile rankings are constructed for the firms by industry-year. Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

<i>Subsamples</i>	$\Delta DEPS$ (1)	$\Delta FEPS$ (2)	<i>Differences</i> (1) - (2)	<i>Adjusted R</i> ²	<i>N</i>
(a) <i>HIGH RULEQ</i> =1	0.182*** (0.061)	0.927*** (0.158)	-0.744*** (17.550)	0.105	4,908
(b) <i>HIGH RULEQ</i> =0	0.001*** (0.000)	0.280*** (0.058)	-0.279*** (23.720)	0.071	7,380
<i>Differences</i> (a) – (b)	0.182***	0.647***			

Table 7: Returns-earnings association and the extent of geographic diversification and the qualities of regulations

The table reports results from industry and year fixed effects regressions showing returns-earnings association with respect to the number of countries the firms have material operations and the exposure to different regulatory regimes. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *NCOUNTRIES* is the number of distinct countries in which the firms have subsidiaries. *RULEQ* is the industry-year quintile ranking of average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years. Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	(1)	(2)	(3)
<i>Intercept</i>	-0.056*** (0.015)	-0.054*** (0.019)	-0.056*** (0.016)
$\Delta DEPS$	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
$\Delta FEPS$	0.329*** (0.072)	0.309*** (0.064)	0.305 (0.067)
<i>NCOUNTRIES</i>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
<i>RULEQ</i>		0.000 (0.003)	
<i>HIGH RULEQ</i>			0.001 (0.008)
$\Delta FEPS * NCOUNTRIES$	0.005 (0.005)	-0.018* (0.011)	0.003 (0.005)
$\Delta FEPS * NCOUNTRIES * RULEQ$		0.012** (0.005)	
$\Delta FEPS * NCOUNTRIES * HIGH RULEQ$			0.031** (0.016)
<i>Adjusted R²</i>	0.074	0.076	0.075
<i>N</i>	12,288	12,288	12,288

Table 8: Returns-earnings association and exposure to regulatory regimes in tax haven destinations

The table reports results from industry and year fixed effects of regressions showing association of returns with positive or negative changes in foreign and domestic earnings per share for the subsamples of firms with subsidiaries in countries with different regulatory regimes. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years. *HIGH HAVENQ* is a dummy variable equal to one if a firm is above the industry-year quintile rankings of *HAVEN INTENSITY* of the firms. *HAVEN INTENSITY* is the total number of tax haven countries divided by the total number of counties in which a firm has material operations.

<i>Subsamples</i>	$\Delta DEPS$	$\Delta FEPS$	<i>Adjusted R²</i>	<i>N</i>
(a) <i>HIGH RULEQ</i> =1, <i>HIGH HAVENQ</i> =0	0.157*** (0.050)	1.274*** (0.2430)	0.114	2,755
(b) <i>HIGH RULEQ</i> =1, <i>HIGH HAVENQ</i> =1	0.371*** (0.093)	0.463*** (0.161)	0.110	2,153
<i>Differences</i> (a) – (b)	-0.214**	0.811***		
(c) <i>HIGH RULEQ</i> =0, <i>HIGH HAVENQ</i> =0	0.001*** (0.000)	0.281*** (0.071)	0.081	4,667
(d) <i>HIGH RULEQ</i> =0, <i>HIGH HAVENQ</i> =1	0.119*** (0.042)	0.283*** (0.100)	0.068	2,713
<i>Differences</i> (c) – (d)	-0.118***	-0.002		

Table 9: Controlling for other important factors

This table reports results from industry and year fixed effects regressions showing the value relevance of foreign

earnings with respect to strength of rule of law across countries where U.S. multinationals have subsidiaries. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *RULEQ* is the industry-year quintile ranking of average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years. Other control variables are *SIZE* as natural logarithm of total assets, *FSHARE* as foreign share of total revenue, and *FREV GROWTH* as growth in foreign revenue. Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	(1)	(2)
<i>Intercept</i>	-0.067** (0.027)	-0.066*** (0.025)
$\Delta DEPS$	0.001*** (0.000)	0.001*** (0.000)
$\Delta FEPS$	-0.190 (0.207)	-0.037 (0.224)
<i>RULEQ</i>	0.001 (0.003)	
<i>HIGH RULEQ</i>		0.002 (0.008)
<i>SIZE</i>	0.004 (0.003)	0.004 (0.003)
<i>FSHARE</i>	-0.036* (0.019)	-0.035* (0.019)
<i>FREV GROWTH</i>	-0.001 (0.002)	-0.001 (0.002)
$\Delta FEPS * RULEQ$	0.179*** (0.055)	
$\Delta FEPS * HIGH RULEQ$		0.609*** (0.178)
$\Delta FEPS * SIZE$	0.051 (0.035)	0.067** (0.031)
$\Delta FEPS * FSHARE$	-0.122 (0.169)	-0.047 (0.143)
$\Delta FEPS * FREV GROWTH$	0.003 (0.076)	0.035 (0.072)
<i>Adjusted R²</i>	0.0802	0.0801
<i>N</i>	10,984	10,984

Table 10: Potential influence of earnings quality

This table reports results from industry and year fixed effects regressions showing the value relevance of foreign earnings with respect to strength of rule of law across countries where U.S. multinationals have subsidiaries.

Subsample of “High EM” consists of firm-years above median of industry-year quintile ranking of absolute value of discretionary accruals, whereas subsample “Low EM” includes observations not in the group of “High EM”. Measure of discretionary accruals is calculated following the methodology of modified Jones. The dependent variable is *RETURNS*, which is compounded monthly market adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *RULEQ* is the industry-year quintile ranking of average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World Bank Governance Indicators and a firm’s rule of law scores are the average scores across the countries in which the firms has material operations. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years. Other control variables are *SIZE* as natural logarithm of total assets (*AT*), *FSAHRE* as foreign share of total revenue, and *FREV GROWTH* as growth in foreign revenue. Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	High EM		Low EM	
	(1)	(2)	(3)	(4)
<i>Intercept</i>	-0.059 (0.048)	-0.065 (0.044)	-0.065* (0.035)	-0.065** (0.032)
$\Delta DEPS$	0.001*** (0.000)	0.001*** (0.000)	0.134*** (0.030)	0.133*** (0.031)
$\Delta FEPS$	-0.397 (0.319)	-0.005 (0.278)	-0.052 (0.371)	0.110 (0.426)
<i>RULEQ</i>	0.003 (0.005)		-0.002 (0.004)	
<i>HIGH RULEQ</i>		0.020 (0.015)		-0.010 (0.011)
<i>SIZE</i>	0.004 (0.005)	0.005 (0.005)	0.004 (0.003)	0.004 (0.003)
<i>FSHARE</i>	-0.045 (0.033)	-0.040 (0.033)	-0.046* (0.025)	-0.046* (0.025)
<i>FREV GROWTH</i>	0.003 (0.008)	0.003 (0.008)	-0.004 (0.003)	-0.005 (0.003)
$\Delta FEPS * RULEQ$	0.194*** (0.072)		0.249** (0.110)	
$\Delta FEPS * HIGH RULEQ$		0.632*** (0.208)		0.648** (0.336)
$\Delta FEPS * SIZE$	0.084** (0.042)	0.055 (0.040)	0.024 (0.056)	0.069 (0.064)
$\Delta FEPS * FSHARE$	-0.411* (0.243)	-0.156 (0.176)	-0.065 (0.529)	-0.048 (0.625)
$\Delta FEPS * FREV GROWTH$	-0.045 (0.103)	-0.033 (0.099)	0.318* (0.179)	0.392** (0.196)
<i>Adjusted R²</i>	0.0805	0.0809	0.0918	0.0899
<i>Observations</i>	3,854	3,854	5,862	5,862

Table 11: Probability of locating subsidiaries to high rule of law region

This table shows results of probit estimates of locating foreign subsidiaries in high rule of law region. The dependent variable is *HIGH RULEQ*, which is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years, whereas industry-year ranking is constructed based on average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World

Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations. The variable *EW_COUNTRIES_IND* is equally weighted average of fraction of all subsidiaries in the industry that are located to countries where the firm-year has operations in, whereas weight is based on the fraction of total unique number of subsidiary-locations of a firm-year in a specific destination. The variable *EW_COUNTRIES_DIST* is equally weighted average of distances of subsidiaries from their capital cities to the capital city of U.S. Other variables are *SIZE* as natural logarithm of total assets (*AT*), *FSAHRE* as foreign share of total revenue, *FREV GROWTH* as growth in foreign revenue, *INVESTMENT* is the ratio of capital expenditure (*CAPX*) to sales (*SALE*), *LEVERAGE* as total debt (*DLC+DLTT*) divided by total assets, and *LIQUIDITY* as the ratio of total current assets (*ACT*) to total current liabilities (*LCT*). Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	(1)
<i>Intercept</i>	3.371*** (0.299)
<i>EW_COUNTRIES_IND</i>	12.876*** (0.872)
<i>EW_COUNTRIES_DIST</i>	-0.418*** (0.034)
<i>SIZE</i>	-0.108*** (0.008)
<i>FSHARE</i>	0.055 (0.058)
<i>FREV GROWTH</i>	0.028** (0.012)
<i>INVESTMENT</i>	0.198 (0.138)
<i>LEVERAGE</i>	-0.130* (0.071)
<i>LIQUIDITY</i>	0.034*** (0.007)
<i>Pseudo R²</i>	0.076
<i>Observations</i>	10,717

Table 12: Controlling for endogeneity

This table reports results of regressions showing value relevance of foreign earnings with respect to foreign subsidiaries being located to strong rule of law region, while controlling for endogeneity in the relationship. "Self-selection" model is following the approach of Heckman (1979), and "Instrumental variable" model is following the approach of Campa and Kedia (2002). The dependent variable is *RETURNS*, which is compounded monthly market

adjusted returns from the fourth month of current fiscal year to the third month after the end of fiscal year. $\Delta DEPS$ ($\Delta FEPS$) is the changes in after-tax domestic (foreign) earnings per share deflated by stock price at the end of previous year. *HIGH RULEQ* is a dummy variable equal to one if the observations are above the median of quintile ranking of the scores of rule of law for the firm-years, whereas industry-year ranking is constructed based on average rules of law score of the firms. Rules of law scores for each country for each year is obtained from World Bank Governance Indicators and a firm's rule of law scores are the average scores across the countries in which the firms has material operations.. Other control variables are *SIZE* as natural logarithm of total assets (*AT*), *FSHARE* as foreign share of total revenue, and *FREV GROWTH* as growth in foreign revenue. *Lambda* is the inverse Mill's ratio calculated from the first stage of Heckman's (1979). Industries are defined following Fama-French 48 industry classifications. Heteroscedasticity-robust standard errors are reported in parentheses. *, **, *** Indicate statistical significance at 10%, 5%, and 1% respectively.

	Self-selection (1)	Instrumental variable (2)
<i>Intercept</i>	-0.057** (0.025)	-0.159* (0.084)
$\Delta DEPS$	0.001*** (0.000)	0.001*** (0.000)
$\Delta FEPS$	-0.027 (0.224)	-0.024 (0.224)
<i>HIGH RULEQ</i>	0.000 (0.009)	0.021 (0.031)
<i>SIZE</i>	0.006 (0.004)	0.005 (0.003)
<i>FSHARE</i>	-0.032 (0.020)	-0.033* (0.020)
<i>FREV GROWTH</i>	-0.002 (0.002)	-0.001 (0.002)
$\Delta FEPS * HIGH RULEQ$	0.611*** (0.178)	0.604*** (0.178)
$\Delta FEPS * SIZE$	0.065** (0.031)	0.064** (0.031)
$\Delta FEPS * FSHARE$	-0.044 (0.143)	-0.044 (0.142)
$\Delta FEPS * FREV GROWTH$	0.035 (0.072)	0.034 (0.072)
<i>Lambda</i>	-0.023 (0.025)	
<i>Adjusted R²</i>	0.0787	0.0783
<i>Observations</i>	10,717	10,717

